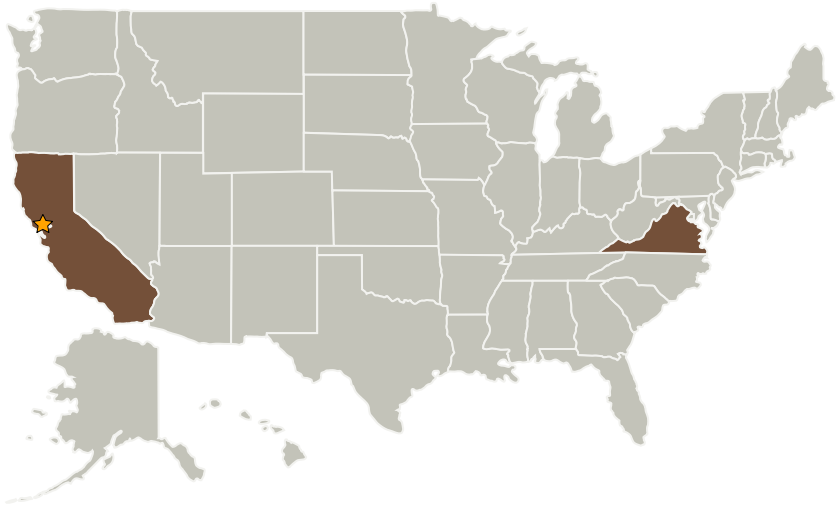
Turbulence Impact Module for ATM Planning and Research, Phase I

Completed Technology Project (2008 - 2008)

Project Introduction

Every day, turbulence has an adverse effect on aircraft operations and capacity of the NAS, costing the airline industry at least $100 million annually in delays, operational inefficiencies, and injuries. There is a need to research and develop traffic flow and ATM methods that mitigate the turbulence impact to NAS operations, but turbulence is poorly represented in current airspace simulation and planning tools. AeroTech proposes to improve these tools and therefore airspace operations by developing and integrating an ATM Turbulence Impact Module (ATM-TIM) into FACET and/or ACES. The module will enable researchers and planners to identify and assess the impact of actual turbulence in the NAS and examine performance capability of new ATM methods with turbulence present. A key enhancement will be the incorporation of a turbulence dimension into the ATM Weather Impact Model that enables the modeling of the impact of convective and clear air turbulence. Phase I will develop the enhanced ATM weather impact model, investigate the integration of ATM-TIM components into the simulation tools, and perform a proof of concept study. By Phase III, the integrated ATM-TIM will improve planners understanding of turbulence's impact on ATM and assist in evaluating new TFM ideas in a turbulent NAS.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Aerotech Research	Supporting Organization	Industry	Newport News, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Paul E Robinson

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.6 Integrated Modeling, Simulation, and Testing